AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of locating a source of a localized elevation on a substrate, comprising the steps of:

(a) measuring a first surface of a plurality of substrates placed separately on a chuck to obtain topography measurements including height (z), pitch and roll measurements;

(b) comparing said z, pitch and roll measurements to pre-defined limits, wherein ~~detecting~~ the presence of a localized elevation in a field on the first surface of the substrates is detected when any one of said z, pitch and roll measurements exceeds said pre-defined limit; and

(c) determining whether the source results from the chuck.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The method of ~~claim 3~~ claim 1, wherein said pre-defined limits comprise z equal to about 0.15 um and pitch equal to about 80 microradians.

5. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein the step (b) comprises detecting the presence of the localized elevation on at least three substrates.

6. (Original) The method of claim 5, wherein the step (c) comprises:

calculating a best linear regression fit line for each pair of pitch-z, roll-pitch and z-roll measurements in the field;

calculating R^2 for each of the calculated best linear regression fit lines; and

comparing R^2 to a threshold value.

7. (Original) The method of claim 6, wherein the threshold value is 0.95.

8. (Original) The method of claim 6, wherein when R^2 is greater than the threshold value, the source of the localized elevation is related to the chuck.

9. (Original) The method of claim 8, wherein the source of the localized elevation comprises a foreign material particulate attached to the chuck.

10. (Original) The method of claim 9 further comprising the step of cleaning the chuck.

11. (Original) The method of claim 6, wherein when R^2 is less than the threshold value, the source of the localized elevation is related to at least one of said substrates.

12. (Original) The method of claim 11, wherein the source of the localized elevation comprises damage on a second surface of said at least one of said substrates.

13. (Original) The method of claim 12, wherein the damage comprises a scratch.

14. (Original) The method of claim 11, wherein the source of the localized elevation comprises a foreign material particulate attached to the second surface of said at least one of said substrates.

15. (Original) The method of claim 14 further comprising the step of cleaning said at least one of said substrates.

16. (Original) The method of claim 1, wherein when the presence of the localized elevation is detected, issuing an alarm.

17. (Original) The method of claim 16, wherein when substrates are being processed in a tool, preventing processing of subsequent substrates until corrective action is taken to eliminate the source of the localized elevation.

18. (Original) The method of claim 1, wherein when the source of the localized elevation is related to the chuck, providing the X/Y coordinates of the source of the localized elevation so that corrective action on the chuck can be directed to a corresponding location on the chuck.

19. (Original) The method of claim 1, wherein X/Y coordinates of the source of the localized elevation are correlated to a step array map to determine which chips are affected by the localized elevation.

20. (Original) The method of claim 19, wherein the affected chips are further correlated to a known yield distribution by substrate region.

21. (Original) The method of claim 1 further comprising setting a limit for a maximum number of localized elevations that are detected so that a corrective action can be taken to eliminate the source of the localized elevation.

22. (Original) The method of claim 21, wherein the corrective action comprises the steps of stopping processing, cleaning the chuck to remove particulate matter and resuming processing; or stopping production, removing wafers from the tool to determine the source of the localized elevation and starting production with a new lot of wafers.

23. (Original) The method of claim 1 further comprising the step of patterning an image on said first surface using a photolithographic tool.

24. (Original) The method of claim 23, wherein the topography measurements are obtained from focus parameter data from the photolithographic tool.

25. (Original) The method of claim 23, wherein locating the source of the localized elevation is independent of imaging level or underlying optical qualities.

26. (Original) The method of claim 23, wherein each substrate is analyzed to detect the presence of a localized elevation.

27. (Original) A computer-readable program product for causing a computer to detect and characterize a defect on a surface of a first wafer, comprising:

a first program code means embodied in a computer useable medium for causing the computer to carry out a first set of measurements on a given surface of said first wafer placed on a chuck prior to carrying out an operation on said given surface;

a second program code means embodied in a computer useable medium for causing the computer to carry out a second set of measurements on said given surface of said first wafer while carrying out said operation on said given surface;

a third program code means embodied in a computer useable medium for causing the computer to determine a difference between said first set of measurements and said second set of measurements;

a fourth program code means embodied in a computer useable medium for causing the computer to carry out said first set of measurements, said

second set of measurements and said difference measurement on a second wafer placed on the chuck;

a fifth program code means embodied in a computer useable medium for causing the computer to carry out said first set of measurements, said second set of measurements and said difference measurement on a third wafer placed on the chuck; and

a sixth program code means embodied in a computer useable medium for causing the computer to compare said measurements from said first wafer, said second wafer, and said third wafer to determine whether a defect results from said chuck.

28. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform a method of locating a source of a localized elevation on a substrate, comprising the steps of:

(a) measuring a first surface of a plurality of substrates placed separately on a chuck to obtain topography measurements including height (z), pitch and roll measurements;

(b) comparing said z, pitch and roll measurements to pre-defined limits, wherein ~~detecting~~ the presence of a localized elevation in a field on the first surface of the substrates is detected when any one of said z, pitch and roll measurements exceeds said pre-defined limit; and

(c) determining whether the source results from the chuck.

29. (Canceled)

30. (Canceled)

31. (Currently Amended) The method of ~~claim 29~~ claim 28, wherein the step (b) comprises detecting the presence of the localized elevation on at least three substrates.

32. (Original) The method of claim 31, wherein the step (c) comprises:

calculating a best linear regression fit line for each pair of pitch-z, roll-pitch and z-roll measurements in the field;

calculating R^2 for each of the calculated best linear regression fit lines; and

comparing R^2 to a threshold value.

33. (Original) The method of claim 32, wherein when R^2 is greater than the threshold value, the source of the localized elevation is related to the chuck.

34. (Original) The method of claim 32, wherein when R^2 is less than the threshold value, the source of the localized elevation is unique to said at least one of said plurality of the substrates.